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MARCH 6.

The President, Dr. RUSCHENBERGER, in the chair.

Thirty-eight members present.

*Influence of Nutrition on Fertilization.*—Mr. THOMAS MEEHAN said that considerable interest had been manifested in England in the unusual failure of the Holly to produce berries, and Mr. Darwin had written a letter to say that bees were everywhere rare in the localities examined by him last spring, and suggesting that this scarcity had resulted in non-pollenization through lack of insect aid. Mr. Meehan was surprised at the suggestion, as the Holly was classed with the anemophilous (wind loving) plants, which were not considered, even by Mr. Darwin's friends, as requiring this assistance. With all respect, however, for the immense services which Mr. Darwin and his close followers had rendered to science, he felt quite sure that they frequently mistook the work of ordinary laws of nutrition for the effects of pollenization; and of this he would now offer an illustration in the case of the common mignonette. In the open air with us this plant seeded freely; in close greenhouses in winter forcing very rarely. Until this year he had never had plants to produce seeds in winter. Others had found a similar experience, and it was common to hear the remark "behold the results of insect agency! In the open air insects visit them, and you get seeds—in the winter greenhouse there are no insects and no seed." But as if to protest against this conclusion, his plants, of which he distributed specimens, had taken to producing seed in abundance; that is to say, every flower had seed. There were from two to six perfect ones in each capsule, not so much as in the open air; but still all had some seed. As regards insects, the conditions this winter were precisely the same as heretofore. They had nothing to do with it. There may have been more light or less light, more heat or less heat, or the earth in which they are growing may not have been exactly the same; or there may have been some other circumstances which gave nutrition a better chance to work on the reproductive organs than heretofore; at any rate insect aid is out of the question in cases like these. He had shown before that so far as the clover was concerned in this country, it would produce seed freely without insect aid; and in explanation of this it had been urged that the doctrine in relation to this question did not preclude the plants in many cases fertilizing themselves when insect aid could not be obtained, and quotations from Mr. Darwin's works had been made before the Academy and elsewhere in support of this view. But in this very letter on the Holly, Mr. Darwin must have forgotten if he ever held to this accommodating view, as he reiterates the

statement that clover seed is a failure when the flowers are not visited by bees.

*The Bluebird and Holly berries.*—Mr. THOMAS MEEHAN observed that the Blue bird had this season stripped his Holly trees of their berries, though it had been supposed by all, he believed, that no birds ate them. Some of the trees were but a few feet from his library window, which gave him a good opportunity to note that it was this and not the Snow-bird. These birds remained with him all through the severe weather of December, not leaving till the January snows came. They fed also on the berries of the common red cedar. He believed in the case of this bird the migration south in the winter season was not with them a question of temperature, but one of food. At least they remained with him in his cedar woods till the berries were all gone.

*Vitality of Seeds under Low Temperature.*—Mr. THOMAS MEEHAN referred to the seeds of wheat, oats and Indian corn, which, after having been left by the *Polaris* in 1872, had been found in 1876 by the Nares exploring expedition, and which, though exposed to the severity of four arctic winters, had yet grown. The growing plants had recently been exhibited before an English scientific society, and surprise expressed, particularly that seed of the maize, a tropical plant, should have received no injury. Mr. Meehan said that though the facts may not have been placed on record, it was not unknown in America that seeds of tropical plants had a power of resisting low temperatures not possessed by the plants themselves. The common forms of *Ipomæa*, known as "morning glories," the "Balsams" (*Impatiens*), the common tomato, and others, came up in gardens from self-sown seeds; and indeed there were large numbers of tropical weeds, which the first frosts destroy, and yet the seedlings appear the next year in great numbers. He called attention to this arctic experience with seeds, however, chiefly to suggest what had often occurred to him, from such observations, that seeds may keep for an indefinite time in low temperatures, when under high ones they soon lose vitality. There is no reason that he knew of why seeds might not get into an iceberg—keeping fresh perhaps for centuries—and in this way some problems in the geographical distribution of plants be solved. He suggested trials by those who had the opportunity. The common silver maple (*Acer dasycarpum*) had seed which usually completely lost vitality in a couple of months from maturity. Experiments with these by those who had large ice-houses, could not fail of resulting in useful knowledge.

*On Rocky Mountain Locusts.*—Dr. LE CONTE exhibited some recently hatched Rocky Mountain locusts, commonly called grasshoppers, which had just been sent to him by Professor Henry, of the Smithsonian Institution, and read the following communica-